

## False Killer Whales *Pseudorca crassidens*: regular visitors to Port Essington and Darwin Harbour in the Northern Territory, Australia

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### Introduction

Until recently there has been very little cetacean research undertaken in the Northern Territory (NT) (Chatto & Warneke 2000; Palmer *et al.* 2009). However, since 2007 the Coastal Dolphin Project has been focussing on the three species of coastal dolphins (Australian Snubfin *Orcaella heinsohni*, Indo-Pacific Humpback *Sousa chinensis* and Indo-Pacific Bottlenose *Tursiops aduncus*) and undertaking a range of research activities including monthly boat-based surveys at three sites in the NT: Coburg Marine Park, Darwin Harbour and the Alligator Rivers region. As the Coastal Dolphin Project has gained a profile both publicly and within various government agencies and non-government organisations, a further benefit has been the recording, reporting and collation of information on a typically ocean-going dolphin that appears to be a regular visitor to both Port Essington and Darwin harbours, the False Killer Whale *Pseudorca crassidens*.

The False Killer Whale is one of the larger members of the dolphin family, Delphinidae, and despite its world-wide distribution throughout the tropics and subtropics, is one of the least known of the large tropical oceanic dolphins (Odell & McClune 1999) (Table 1). Adult male False Killer Whales can reach up to 6 m in length and females to 5 m (Baird 2008). The common and scientific names relate to the similarity in skull morphology to the Killer Whale (*Orcinus orca*), but the two species are not closely related.

In most parts of their range, False Killer Whales are usually far from shore, though there have been occasional exceptions, and individuals have been recorded on the west coast of Vancouver Island in Barley Sound, Canada (Stacey & Baird 1991). The only other areas where False Killer Whales are frequently seen close to the shore are near tropical oceanic islands (Acevedo-Guitierrez *et al.* 1997; Baird *et al.* 2008). In

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particular, genetic evidence suggests a demographically isolated population around the main Hawaiian Islands (Baird *et al.* 2008; Chivers *et al.* 2007).

Table 1. Characteristics of the False Killer Whale (from Baird 2008).

Distribution	Found in all tropical and warm temperate oceans. Typically pelagic but approaches close to shore around oceanic islands.
Abundance	No estimates of global populations available but appear to be uncommon throughout their range.
Ecology	Known to mass strand. Feed on a variety of oceanic squid and fish and have been recorded feeding on small dolphins that have been released from tuna-purse seines.
Behaviour	Particularly social usually travelling in groups of 20 to 100 individuals. Strong bonds among individuals and long-term associations (15 years have been recorded).
Life history	Based entirely from stranded animals - both sexes thought to mature between 8 to 14 years of age. Longevity estimated around 57 years for males and 62 years for females. Calving interval potentially 7 years.
Anthropogenic threats	Small numbers have been taken directly and incidentally as bycatch, including by the gill-net fishery in northern Australia (Bannister 1977). In Hawaiian waters the longline fishery is thought to be having a major impact on longterm viability of the population. Have been recorded ingesting plastic. High levels of toxins documented in tissues from stranded animals.

Recent aerial surveys around the main Hawaiian Islands suggest that the population of False Killer Whales has declined considerably since the late 1980s (Reeves *et al.* 2009). Causes for the decline are not clear though incidental mortality in fisheries (both inshore and offshore) and potential reduction in prey availability (Reeves *et al.* 2009) could be factors in their decline.

## Observations

In the NT, eight sightings of False Killer Whale schools within the semi-closed harbours of Port Essington and Darwin have been collected or directly recorded since 2007 as part of monthly surveys undertaken by the Coastal Dolphin Project (Figure 1 & 2; Table 2). All recent sightings within these NT harbours have been recorded during the wet season (December – April). The behavioural observations associated with these sightings suggest the False Killer Whales were chasing schools of fish. There are two other pre-2007 sightings for Port Essington (20+ including young, 11<sup>th</sup> June 2003, R. Chatto pers. comm.; > 20, 10<sup>th</sup> October 2004, P. Fitzgerald pers. obs.) that were both outside the wet season.



Figure 1. Locations of four False Killer Whale sightings (●) in Port Essington (Cobourg Peninsula) 2008 to 2009.



Figure 2. Locations of four False Killer Whale sightings (●) in Darwin Harbour 2007 to 2009.

**Table 2.** Recent (2007 to 2009) sightings of False Killer Whales in the Northern Territory.

Area	Date	Number recorded
Port Essington	April 2008	80
Port Essington	December 2008	20
Port Essington	March 2009	> 8 (plus young)
Port Essington	April 2009	> 25
Darwin Harbour	April 2007	> 12
Darwin Harbour	January 2008	> 10
Darwin Harbour	March 2009	> 20
Darwin Harbour	April 2009	> 20

## Conclusion and Recommendations

Information on how cetacean populations are structured within their environments is essential for developing conservation and management plans. In the past it was believed that pelagic cetaceans have large continuous distributions with no apparent impediments to their movements. With the growing number of studies that focus on genetics, morphology and tagging of cetacean species, there is increasing evidence of population sub-structure in coastal, pelagic and migratory cetaceans (Chivers *et al.* 2007). Further, previous literature does not consider estuarine situations as essential habitat. The sightings reported here call for a reassessment of the importance for False Killer Whales of estuarine habitats, and whether such use is opportunistic or essential to False Killer Whale survival through the tropical wet season. Wide-ranging pelagic species like the False Killer Whale are inherently difficult and expensive to study. Nonetheless, the NT could be in ideal position to contribute to understanding False Killer Whale stock structure and thus contribute to defining appropriate geographical scales for management of populations (i.e. Evolutionary Significant Management Units) (Moritz 1994; Palsboll *et al.* 2007). The False Killer Whales recorded in the NT could potentially be a demographically isolated population and therefore warrant further investigation.

In order to contribute to the global understanding of this large pelagic dolphin, the Coastal Dolphin Project will opportunistically try to collect skin-biopsies of False Killer Whales and undertake genetic analysis to define the population in northern Australia. Hopefully this work will lead to appropriate research and management for these regular ocean-going visitors to our NT shores.

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